Cross-age mentoring to support A-level pupils' transition into Higher Education and undergraduate students' employability

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Abstract

Two challenges identified for psychology higher education are supporting entry students' transition, and supporting graduates' transition into employment. The evaluation of the first phase of a cross-age mentoring action research project targeting these issues is presented; eight psychology undergraduates mentored 20 A-level psychology pupils in two schools. Mentors showed significant increases in two of nine psychological literacies, in self-efficacy but not self-esteem, were highly satisfied with the experience, and reported benefits including enhanced communication skills. Mentees did not improve relative to controls on attitudes towards higher education, self-efficacy or self-esteem, though reported benefits included enhanced insight into going to university, greater knowledge of psychology, and gains in academic skills. Mentees in one school were highly satisfied, with greater variation for the second school. Adaptations identified for the next project iteration include greater focus upon the psychology A-level curriculum, and increased communication between mentors and school staff.

Keywords

mentoring; transition; employability; widening participation; action research

Introduction

Two key challenges within higher education (HE) concern transition: supporting new students transitioning into degree level study, and supporting the transition of graduates into employment. This paper presents the evaluation of the first phase of an action research project using cross-age mentoring to target both preparing A-level pupils for a successful transition into studying psychology at university, and developing the employability of current psychology undergraduates.

Transition into HE

Students entering HE have access to new opportunities but also face challenges. Successful transition involves navigating a new learning environment, developing new academic skills, social integration, and for some new students it will also involve developing life skills necessary for independent living. Retention of new learners has been linked to both academic and social integration (e.g. Black & MacKenzie, 2008). Supporting transition requires not only putting structures and processes in place which make the first year easier to navigate, but also working with new students before they arrive. Ensuring that students have realistic expectations of what university life is like can promote retention; withdrawal or withdrawal consideration can arise due to a mis-match between new students' expectations of HE and the reality (Briggs, Clark & Hall, 2012).

Supporting successful transition is particularly important within psychology. In a review of the future of undergraduate psychology education conducted for the Higher Education Academy (HEA; Trapp, Banister, Ellis, Latto, Miell & Upton, 2011) it was recommended that entry students should be informed about what is involved in a psychology degree and that there should be regional preparatory sessions. The need to better inform entry students arises out of common misconceptions they are likely to hold. Reddy and Lantz (2010) identify several misconceptions which abound, including i) believing that a psychology degree confers professional psychologist status, ii) equating academic psychology with counselling and psychotherapy, and iii) not conceptualising psychology as a science. The latter may be particularly problematic as studying a science at pre-tertiary level is often not

an entry requirement, meaning that students may well enter their degree without recent grounding in scientific principles. Related to this is not being prepared for the level of mathematical and biological content (Reddy & Lantz, 2010), which can lead to anxiety during the first year.

Psychology also faces the challenge of having a marked female:male gender skew in students entering the discipline. Sanders, Sander & Mercer (2009) report a ratio of 4:1 in the UK, based upon 2006-07 figures from the Higher Education Statistics Agency. However, figures reported by Smith (2011) indicate a ratio of closer to 3:1 for the proportion sitting A-level psychology exams (based upon figures from the Joint Council for Qualifications in 2010). Smith (2011) also shows that females consistently outperform males at A-level. It seems that further attention is needed in terms of supporting males at pre-tertiary level, and increasing the possibility of their making the transition to degree level study.

Transition from HE into employment

At the other end of the undergraduate journey is the transition into employment. The need to enhance employability is recognized as a key area for development in HE generally, and particularly in psychology (Reddy, Lantz & Hulme, 2013; Trapp et al., 2011). At a time where there is an increasing number of graduates entering the job market and less certainty of gaining employment, it is important that academic departments recognise the need to prepare their students (Upton & Trapp, 2010). It is also advantageous for departments to do so, given that outcomes from the annual Destination of Leavers from Higher Education (DLHE) feed into the Higher Education Funding Council for England's (HEFCE) Key Information Sets and into university league tables.

Work placements are a key way for students to gain employment-related experience, and psychology departments have been encouraged to recognize the value of offering placements connected to their programmes (Trapp et al., 2011). There is some indication that UK graduates generally are disadvantaged compared to their counterparts from other European countries, where placements are more commonly integrated within a degree. Little (2008) found that in 2007 29% of UK students had completed a placement compared to an average

of 55% across Europe. Within psychology, it is essential that students obtain applied experience. Around 80-85% of psychology graduates go on to work outside of professional psychology routes (Trapp et al., 2011), but it seems likely that for some graduates this is due to difficulty in entering a professional route. Students typically require a substantial amount of hands-on experience to be considered for a place on professional training courses.

Mentoring to support transition

The use of mentoring, usually involving a one-to-one supportive relationship between a mentor and a mentee, is widespread in HE and generally geared towards supporting the transition to university. For example, Black and MacKenzie (2008) identified a range of peer support approaches in common use in the Scottish HE system in the entry year, including mentoring. Trying to increase retention rates has been cited as a key reason for the growing use, although there appears to be little hard evidence that peer mentoring does reduce attrition (Hill & Reddy, 2007). Peer mentoring has however been shown to have positive effects for both the mentors, including communication skills, and mentees, such as enhanced self-esteem and academic self-efficacy (see e.g. Hill & Reddy, 2007, and Budge, 2006 for summaries).

Mentoring has been highlighted as a valuable type of placement for psychology students (Trapp et al., 2011). Acting as a mentor is well placed to develop many of the key skills/abilities sought by employers of psychology graduates, which include listening and interpersonal relationship skills (Landrum & Harrold, 2003). Chester, Burton, Xenos and Elgar (2013) report findings from a peer mentoring programme implemented for all first year psychology students in an Australian university, with support provided by third year students. Significant changes were seen related to the use of deep learning approaches, and enhanced final grades when compared to previous first year cohorts. Improvements were also seen on aspects of psychological literacy, seen as the ability to use psychological principles to benefit oneself and wider society. Within the UK, Hill and Reddy (2007) provide a qualitative evaluation of a scheme where second and third year students mentored first year students. All but one mentee had a positive experience, valuing practical and academic advice as well as reassurance, and mentors reported the positive experience of helping others, appreciated the

break from their own studies, and found that it helped them to reflect upon their own development.

Mentoring has also been used to support transition through cross-age mentoring systems with young people in pre-tertiary education. Evidence on successfully supporting the transition to HE indicates that entry students value personal contact with others who have experienced similar transition experiences (Briggs et al., 2012), which cross-age mentoring is well-placed to provide. In 2004 the Aimhigher initiative, a range of activities targeted at 14 to 19 year olds, was launched in the UK to promote increased participation in HE – funded by HEFCE and the Learning and Skills Council (Passy & Morris, 2010). One aspect of this was the Aimhigher Associates scheme; in its first national year, 2009-10, nearly 16,000 pupils were mentored by around 3,400 university students (HEFCE, 2011). Passy & Morris (2010) report indications that the Aimhigher Associates scheme was valued and perceived to have an impact, though there was a lack of substantive quantitative evidence available. Maras, Carmichael, Patel and Wills (2007) looked at the impact of such widening participation activities in general, including mentoring, and found that participation was associated with higher academic attainment and with attitudes towards HE. Evidence that cross-age mentoring can be effective in promoting academic aspirations also comes from the Big Brothers/Big Sisters program in the US (e.g. e.g. Herrera, Grossman, Kauh & McMaken, 2011) and its use with disadvantaged youth in Australia (Curtis, Drummond, Halsey & Lawson, 2012).

Project development and evaluation aims

A cross-age mentoring project, where university psychology students act as mentors to A-level psychology pupils, was developed to support both the transition into HE and the transition out of HE into employment. The decision to initiate the project arose out of a perceived opportunity to capitalise upon my own professional experience of researching peer support systems in schools, and of acting as a mentor to young people – including as an Aimhigher Associate during my doctoral studies. The university psychology department had recently introduced a system where students could complete placements, either linked to applied 3rd year modules or as part of a university wide 'Passport Award' system where

passport points could be gained for extracurricular activities. Acting as a mentor to A-level pupils fit very well as a placement opportunity, which could be linked to a new 3rd year module in Educational Psychology.

In designing the project I consulted with the Outreach and Widening Participation team, with a view to aiming to support A-level pupils who could potentially most benefit and thus this also formed a widening participation related project. Although the project was necessarily an outreach project from the university, it aimed to promote aspirations towards HE in general and smooth the potential transition to studying psychology at any university.

The cross-age mentoring project had the following aims:

i. To support transition to university amongst A-level psychology pupils, through promoting aspirations towards higher education and developing understanding of studying at degree level
ii. To support the development of university students' employability, through providing an opportunity to gain applied experience.

The first cycle of the project ran in the 2013/14 academic year, and future iterations are intended to run in subsequent years. The first phase was evaluated in terms of the project's effectiveness in achieving the above aims, and whether there was any wider benefit upon aspects of psychological competence. The evaluation also aimed to identify positive and negative factors in the implementation of the project, which could inform future cycles.

Methods

Design

This study forms a mixed-methodology, pre-post evaluation of the initial phase of the cross-age mentoring action research project; the overall process of the project is depicted in Figure 1.

[Fig. 1 about here]

Participants and settings

Eight undergraduate single-honours psychology university students (7F; 1M) from the host institution acted as mentors. I decided to open up the mentoring placement to 2nd and 3rd

year students but not to 1st year students, who would not yet have fully experienced the process of transitioning to university. Seven mentors were in their 2nd year and completed the role as a placement within the university 'Passport Award' scheme and one mentor was in their 3rd year and completed the role as a course-linked placement. Mentors applied by expressing interest in the role and no exclusion criteria were used. Five students chose to become a mentor due to an interest in working within education after university, two to gain experience related to other specific career options, and one to gain generally useful employment-related experience and skills development. All mentors received training in child protection from a university child protection officer, in active listening skills from a university counsellor, and in preparing for the mentoring role from myself as project co-ordinator.

Mentees and control pupils were Year 12 A-level psychology pupils (aged 16 to 18 years) in two secondary schools. In School 1 there were 10 mentees (7F; 3M) and 10 control pupils (all F) also completed the evaluation measures, and in School 2 there were 10 mentees (all M) and 14 control pupils (all M) completed the evaluation measures. Mentees were selected by the schools' psychology A-level teacher based upon fitting criteria related to widening participation, e.g. being on the C/D grade boundary, or being perceived as benefiting from further engagement in their studies. In the context of psychology, including a high proportion of male pupils was considered to be an additional way of engaging with an under-represented group at degree level.

School 1 was a mixed state school and was rated as 'good' by the most recent Ofsted (official government body for inspecting schools) report in 2013. School 2 was an all-boys state school and was rated as 'requires improvement' in the most recent Ofsted report in 2013. In both schools the proportion eligible for the pupil premium was lower than the national average. In School 2 the proportions of pupils from ethnic minority backgrounds and with a disability or special educational needs were higher than the national average.

Mentoring activities and procedure

Four mentors worked in each school. Mentoring activities began with a presentation to all Year 12 A-level psychology pupils by the mentors working in that school on what it was like to study

psychology at university. Small-group mentoring sessions were then conducted within the school settings. Sessions were held across the Spring academic term and were fit around school lessons and extra-curricular activities. There was an additional university visit where pupils visited the host institution and heard staff research talks, had a campus tour, and took part in a psychology experiment.

I decided to use small-group sessions rather than one-to-one mentoring, given that the mentors may not have yet developed the communication skills required for more intensive one-to-one work. Acting as a mentor was intended to provide an opportunity for developing employability-related skills and I did not wish to potentially exclude students on the basis of existing skills levels. Additionally, small-group sessions were seen as less likely to have the potential to lead to disclosures from the pupils involved, which would be problematic from a child protection perspective. In order to promote mentors' skills development, the specific details of each mentoring session were left open for them to plan with minimal input from the project co-ordinator as to suggested topics. An outline of the mentoring activities, and topics covered in the mentoring sessions are shown in Figure 2.

Evaluation measures were completed by mentors, mentees and control pupils in the same week as the opening presentation in each school, and in the week of the final mentoring session. Two psychology undergraduates were recruited as research assistants, providing a further way for the project to provide employability-related experience for existing students. Pupils and student mentors were provided with an information sheet about the project evaluation. This made it clear that participation was distinct from participation in the project itself, and that their decision whether to take part and any information they provided would not affect their involvement in the project or their education. Pupils' parents were also sent an information sheet about the project. The evaluation received approval from the university psychology department's internal ethics board, and was conducted in accordance with the ethical guidelines of the British Psychological Society and the British Educational Research Association.

[Fig. 2 about here]

Measures

Questionnaires:

To assess impact upon academic aspirations (mentees and control pupils):

i. Attitudes to HE Questionnaire (AHEQ, Maras et al., 2007): Three factors from the AHEQ are reported: views on likelihood of attending university (8 items); expected A-level grades (3 items); general academic motivation (7 items). Items use a five-point likert scale (Strongly Agree; Agree; Neither Agree nor Disagree; Disagree; Strongly Disagree), and an overall score was calculated for each factor.

To assess impact upon aspects of psychological competence (mentors, mentees, and control pupils):

ii. Rosenberg Self-Esteem Scale (Rosenberg, 1965): 10 items using a four-point likert scale (Strongly Agree; Agree; Disagree; Strongly Disagree) which assess global self-esteem. An overall score is calculated, ranging between 0 and 30.

iii. Self-Efficacy Scale (Schwarzer & Jerusalem, 1995): 10 items using a four-point likert scale (Exactly True; Moderately True; Hardly True; Not at all True) which assess a general sense of perceived self-efficacy. An overall score is calculated, ranging between 10 and 40.

To assess impact upon employability-related skills (mentors):

iv. Psychological Literacy Scale (Chester et al., 2013): this scale was developed by Chester et al. (2013) to assess self-rated competencies of undergraduate psychology student peer mentors on nine capabilities related to psychological literacy identified by McGovern et al. (2010): having a well-defined vocabulary and basic knowledge of the critical subject matter of psychology; valuing the intellectual challenge required to use scientific thinking; taking a creative and amiable skeptic approach to problem solving; applying psychological principles to personal, social and organisational issues in work, relationships and the broader community; acting ethically; being competent in using and evaluating information and technology; Communicating effectively in different modes and with many different audiences; recognising, understanding and fostering respect for

diversity; being insightful and reflective about one's own and others' behaviour and mental processes. Items are rated using a four-point likert scale (Excellent; Reasonable; Poor; Non-existent).

To assess satisfaction with, and impact of, the mentoring activities (mentees and mentors):

v. Mentoring impact - mentees (Hryciw, Tangalakis, Supple & Best, 2013): 9 items were adapted from those used by Hryciw et al. (2013) to assess the impact of a peer mentoring program for undergraduate paramedic students on academic subject knowledge, confidence and skills, and social networks. Items are rated on a five-point likert scale (Strongly Agree; Agree; Undecided; Disagree; Strongly Disagree). 4 open questions were also used to assess perceived benefits of the mentoring project, and what was helpful and unhelpful about the project.
vi. Mentoring impact - mentors (Hryciw et al., 2013): 7 items were adapted to assess the impact on presentation and communication skills, academic understanding and motivation, and connection to the university. Items are rated on a five-point likert scale (Strongly Agree; Agree; Undecided; Disagree; Strongly Disagree).1 open question was used to identify any additional perceived skills or benefits.

Mentor focus groups: focus groups were held with the mentors before and after the project activities. These were designed to last up to an hour and covered: reasons for becoming a mentor, perceived value of the training, perceived benefits for themselves and for the mentees, and challenging and rewarding aspects of the role.

Interviews with school staff: interviews were held at the end of the project with the school A-level psychology teachers. These were designed to last around 30 minutes and covered: perceived impact upon mentees and what worked well and what did not work well in terms of practical implementation.

Data analysis

Data were analysed to address what impact the project had upon the mentees and mentors, and to identify positive and negative implementation factors. In assessing impact upon the mentees, I decided to analyse the data from the two schools separately given differences in

how the project had been implemented. In School 1, six small-group mentoring sessions had run and most mentees had been able to attend the majority of mentoring sessions: of the eight possible sessions (including the initial presentation and university visit) the mean number of sessions attended was 6.4 (SD 0.92). In School 2, it was only possible to run four small-group sessions due to difficulties in scheduling these around classes and extracurricular activities at the school, and there was greater variability in the number of sessions mentees attended. Of the six possible sessions (including the initial presentation and university visit) the mean number of sessions attended was 4.22 (SD 1.56). As pupil mentees in the two schools had quite substantially different experiences of the mentoring activities, combining data would not be meaningful.

Repeated measures ANOVAs were performed to test for pre-post differences in mentees' scores relative to control pupils on aspects of attitudes towards higher education, and on self-esteem and self-efficacy. Paired samples t-tests were conducted to test for pre-post differences in mentors' scores on the nine psychological literacies, and on self-esteem and self-efficacy. Percentages are reported for the response options on the mentoring impact questionnaires.

The transcriptions of the focus groups with mentors and interviews with school staff, and the mentees' responses to the open questions on the mentoring impact questionnaire were all analysed to identify: perceived benefits for pupils and mentors, and what worked well or did not work well in the implementation. Illustrative quotes are provided with the findings.

Results

Impact upon mentees

Mean scores for mentees on the AHEQ, Rosenberg Self-Esteem Scale, and Self-Efficacy Scale are shown in Table 1.

Impact upon attitudes towards higher education: For all three factors from the AHEQ, no significant main effects were found for time point or mentees vs. controls, nor any significant interaction effects for either school.

Impact upon aspects of psychological competence: For School 1, no significant main effects were found for time point or mentee vs. control, and no significant interaction effects for either self-esteem or self-efficacy. For School 2 no significant main effects or interaction effects were found for self-esteem. For self-efficacy there was a significant effect of time point, F (1, 12) = 4.839, p>.05, with mean scores decreasing from 31.36 (*SD* 4.83) to 29.43 (*SD* 4.62). However, there was no main effect of whether a pupil was a mentee or control, F (1, 12) = <1, p>.05, and no interaction effect, F (1, 12) <1, p>.05.

[Table 1 about here]

Satisfaction with mentoring: Mentees' responses to statements about the mentoring sessions are shown in Table 2. It can be seen that mentees in School 1 were very positive about the scheme, with 100% saying Strongly Agree or Agree to whether it had been a positive experience and to feeling that it improved both their confidence and knowledge in psychology. Mentees in School 2 had more mixed views, with 63.7% saying Strongly Agree or Agree that it had been a positive experience and the rest being split between disagreeing/strongly disagreeing and being undecided. Pupils in this school also held more mixed views as to whether the scheme had positive impact in specific areas.

In the open questions mentees indicated that they felt they had benefited, apart from two mentees in School 2. Benefits were similar across the two schools and included: improved understanding of psychology (n = 7); learning about university (n = 4) e.g. different types of universities and understanding what university life is like; improved study skills (n = 4); support with university applications/CVs (n = 2). Illustrative quotes from the open question responses are provided below:

> Helped me to decide what I wanted to do at university and the type of university I wanted to go to. (Mentee)
>
> …my psychology knowledge has been broadened, they explained things in ways school hadn't. (Mentee)

In the interviews and focus groups school staff and mentors also perceived benefits for the mentees, including greater insight into university-level study and what going to university was actually like, having their academic knowledge reinforced, and learning how to study e.g. understanding how to revise and answer exam questions. Mentors also felt that they had seen some pupils' confidence in their academic abilities improve during the project, as exemplified in the below quote:

> Mentor 1: …like he didn't seem very confident but then he started saying it and actually he knew it so it was…
> Mentor 2: And at the end he was like, ah I don't feel stupid anymore…

[Table 2 about here]

Impact upon mentors

Mean scores for mentors on the Psychological Literacies Scale, Rosenberg Self-Esteem Scale, and Self-Efficacy Scale are shown in Table 3.

Impact upon psychological literacies: A significant increase was seen for two literacies. For 'Valuing the intellectual challenge required to use scientific thinking and the disciplined analysis of information to evaluate alternative courses of action', the mean increased from 3.00 (*SE* 0.00) to 3.38 (*SE* 0.18), t (7) = -2.05, p<.05, r = 0.61. For 'being insightful and reflective about one's own and others' behaviour and mental processes', the mean increased from 3.13 (*SE* 0.28) to 3.63 (*SE* 0.18), t (7) = -2.65, p<.05, r = 0.71.

Impact upon aspects of psychological competence: There was no change in mentors' self-esteem scores from pre- (*M* 19.63, *SE* 1.55) to post-test (*M* 19.38, *SE* 2.07). Mentors' self-efficacy scores significantly increased from pre-test (*M* 31.38, *SE* 0.82) to post-test (*M* 33.25, *SE* 0.75), t (7) = -4.255, p<.01, r = 0.85.

[Table 3 about here]

Satisfaction with mentoring: Mentors were largely very positive about the perceived impact of the mentoring sessions. As can be seen in Table 4, the majority responded Strongly Agree

or Agree to the items in this scale, with 100% feeling that the sessions improved their presentation skills and confidence, and made them feel more connected to the university. Five mentors answered the open question on any other perceived skills or benefits gained: all referred to aspects of communication and group-working skills e.g. learning to quickly create bonds with the pupils, and having skills to motivate others.

[Table 4 about here]

Perceived benefits were also commented upon in greater depth within the focus group at the end of the project. In general, the experience of making a difference to other people came across as rewarding. Developing communication skills for working with young people different from themselves and learning how to adapt information for different people were key benefits. Related to this, a couple of mentors reported feeling greater confidence in presenting to or communicating with others. For example, one mentor said:

> I think it definitely made me more confident presenting because I noticed the difference when we were doing the lab report presentations [in university classes]

Several mentors specifically commented that the experience had helped them consider their potential career options. For some the experience strengthened a desire to work in education, whilst others wanted to consider other options after seeing how challenging this could be – as the quote from a mentor below illustrates:

> …it kind of made me think a bit about, because at one point I was considering a lot of maybe educational psychology or working in a school…but I don't know if that's exactly what I'd want to do anymore so in that way it was really good that I've experienced it.

Helping the pupils learn an A-level topic had prompted reflection upon the mentors' own academic development, as they realised how simple they now found the A-level material.

Implementation

Both school staff and the mentees themselves expressed that it was valuable to have the support come from people who had themselves recently gone through the transition to university – as the teacher in School 1 commented, "*them in two years' time*". Both mentors and mentees reported having been able to connect well within the mentoring relationship, which seemed to be supported by the shared experience of mentors and mentees. For example, in the open questions one mentee commented that:

> It was helpful to speak to people who have experienced what we're going through, and can give us knowledge about their first-hand experiences of uni.

Aspects of the content of the mentoring activities which were perceived as being especially useful by staff, mentees, and mentors were the university visit, covering a topic from the A-level syllabus, and support with study skills. For the mentors, the training received at the start of the project was felt to be helpful, particularly in developing the listening skills needed and for understanding how the role of mentor differed from that of being a teacher.

Mentors felt that receiving information about the pupils' A-level syllabus and current level would have been helpful, both within the training and from the school staff. A challenge had been the need to support the pupils with a syllabus that differed from what the mentors themselves had experienced before university, and feeling that the pupils expected them to be experts on their A-level. It was evident in the mentees' open responses that they valued the curriculum related content and would have appreciated more of this. For example, when asked in an open question what was least helpful, one mentee said:

> Limited number of topics relating to psychology course covered.

In School 2 both mentors and the school teacher felt that there had been difficulties with the timing of sessions, which varied from week to week to fit around classes and extracurricular activities. In both schools not all pupils selected as mentees could attend every session, and it was felt that greater attention to this was needed in future. Several mentees also commented upon the timing issues in their open question responses.

The teachers in both schools also felt that they would wish to reconsider which pupils were involved as mentees. In School 1 the teacher felt it would be beneficial to target male pupils in future, as the school struggled to engage this group within the psychology A-level classes. In School 2 the teacher felt that the majority of their psychology A-level pupils would have benefited from the project and the extra engagement in the subject, and wanted to consider ways of involving more pupils in future.

Discussion

This evaluation has provided mixed evidence of the effectiveness of the first phase of the cross-age mentoring project in terms of impact upon A-level pupil mentees and undergraduate student mentors. No improvements were seen in measures of attitudes to higher education, self-esteem and self-efficacy for mentees, though mentees' responses in the mentoring impact questionnaire indicated benefits particularly for those in School 1. Qualitative evidence from the mentees, school staff and mentors also indicated benefits in terms of insight into studying at university, developing academic skills, and understanding of psychology. For the mentors, significant improvements were seen for self-efficacy and for two of nine psychological literacies related to scientific thinking and evaluating courses of action, and to insight into behaviour and mental processes. Mentors were also highly satisfied with the experience, indicating benefits in their responses to statements about the impact and in the focus groups. Positive aspects of the project's implementation were identified, as well as areas where improvements could be made.

Effectiveness of the project

As in Passy and Morris' (2010) evaluation of the Aimhigher scheme, there is qualitative evidence that this cross-age scheme was useful for mentees but a lack of quantitative evidence. In School 1 there is encouraging evidence from responses to the mentoring impact statements that the project supported confidence and knowledge in psychology, as well as the development of academic skills generally. In School 2 the responses show that some mentees but not all experienced these benefits. Whilst mentees did report benefits, it is possible that the scheme did not reach pupils who were most in need of the additional support; mentees' scores on the aspects of attitudes towards higher education are comparable to those of control pupils, and in the higher regions of possible scores at pre-test. It could also be that adaptations to the project are needed before more substantial benefits are possible for mentees.

The qualitative evidence suggests that the project was successful to some extent in preparing mentees for the potential transition to studying at university level. Understanding what degree-level study, as well as what life at university, is really like, were key benefits highlighted by the mentees as well as by staff and mentors. The university visit appears to have been especially effective in achieving this, as well as simply being able to talk with people who were themselves experiencing university.

Clear employability-related benefits were seen for the mentors. As shown in the focus group responses, the project allowed mentors to trial the possibility of a career in education and develop skills for communicating and working with different types of people. Responses to the mentoring impact statements indicate that mentors very largely perceived that the experience helped them to develop employability-related skills in speaking, presentation skills, and general confidence. This suggests that the project was successful in promoting key skills desired by employers of psychology graduates (Landrum & Harrold, 2003). For 75% it also helped them to develop their own understanding of psychology, and some reflected upon their own academic development in the focus group as well.

For mentors, some specific significant improvements were seen in self-efficacy and two psychological literacies. Impact upon psychological literacies was examined as these

competencies are desirable for psychology students to develop within their degree, and improvements in some (six out of nine) aspects had been shown by Chester et al. (2013) in their evaluation of a university peer mentoring system. Unlike in their evaluation, improvements were only seen in two literacies. However, as mentors' mean scores were very high at pre-test there seems to have been little room for improvement in the present study.

The decision to look at impact upon aspects of general psychological competence, self-esteem and self-efficacy, may be seen as a limitation of this evaluation. There is evidence that mentoring can improve these aspects in both mentors and mentees (see e.g. Hill & Reddy, 2006, and Budge, 2007). However, although an increase was seen for self-efficacy in mentors, it is difficult to ascribe this change to participation in the mentoring project above the other experiences which mentors will have had during the second half of the academic year. It would also be very difficult to find a control group of students who did not themselves take part in extracurricular activities likely to promote their development. A better way to evaluate the impact of the project may be to more closely match what is measured with specific areas within which improvements are intended. For example, evaluating mentors' communication skills in more depth could be more relevant in terms of examining employability-related impact.

Implementation

The core mentoring relationship worked well, with both partners reporting a positive sense of connection. Receiving support from people who had themselves recently experienced the transition out of pre-tertiary education was valued, supporting previous findings that entry students value personal contact with those who have recently made the transition (Briggs et al., 2012).

Support in understanding the psychology curriculum and how to study the subject matter was highly valued by mentees, and it is on statements related to psychology specifically that the most positive responses are seen from mentees. It may be useful for greater emphasis to be placed upon this in future iterations, as this could be where most

benefit can be achieved. Connected to this, there is a need for mentors to receive information about the A-level syllabus being studied by their mentees in advance, and for enhanced communication between mentors and school staff regarding the curriculum and pupils' current levels.

In future iterations it will be important to try to ensure that pupils are not prevented from attending mentoring sessions due to time-tabling issues, which was a perceived problem for both schools. For School 2 it seems likely that impact was limited partly due to the smaller number of mentoring sessions, and the inconsistency in the number of sessions mentees attended. Both schools indicated a desire to participate in the project again, and would wish to review not only timing of sessions but also which pupils take part. In School 1, the mixed-sex school the psychology teacher felt that it would be worthwhile specifically targeting male pupils who are seen as generally hard to engage. In School 2, the all-boys school, the teacher felt that most pupils would have benefited from the extra support and engagement. This is in accordance with previous suggestions that male psychology A-level pupils are under-performing and require further support (Smith, 2011).

This evaluation has reported that cross-age mentoring can be a useful employability-related experience for undergraduates, particularly in developing relevant skills and exploring career options. Although there was little quantitative evidence that pupil mentees improved in the overall attitudes towards higher education, or aspects of psychological competence, benefits were perceived by mentors, school staff, and the pupils themselves. Based upon the findings reported here, adaptations will be made to the project activities and to the way in which its impact is measured, for future iterations.

References

Black, F. M., & MacKenzie, J. (2008).*Quality enhancement themes: the first year experience – peer support in the first year*. The Quality Assurance Agency for Higher Education.

Briggs, A. R. J., Clark, J., & Hall, I. (2012). Building bridges: understanding student transition to university. *Quality in Higher Education*, iFirst article, 1-19.

Budge, S. (2006). Mentoring in post-secondary education. *Journal of College Reading and Learning, 37* (1), 73-87.

Chester, A., Burton, L. J., Xenos, S., & Elgar, K. (2013). Peer mentoring: supporting successful transition for first year psychology undergraduate students. *Australian Journal of Psychology, 65*, 30-37.

Curtis, D. D., Drummond, A., Halsey, J., & Lawson, M. J. (2012). *Peer-mentoring of students in rural and low socioeconomic status schools: increasing aspirations for higher education.* NCVER, Adelaide. Retrieved June 6th, 2013 from http://files.eric.ed.gov/fulltext/ED540880.pdf

Herrera, C., Grossman, J. B., Kauh, T. J., & McMaken, J. (2011). Mentoring in schools: An impact study of Big Brothers Big Sisters school-based mentoring. *Child Development, 82* (1), 346-361.

Higher Education Funding Council for England. (2011). *Aimhigher Associates scheme: Patterns of participation during the first year*. HEFCE December 2011/35. Retrieved June 5th, 2014 from http://www.heacademy.ac.uk/aimhigher-associates

Hill, R., & Reddy, P. (2007). Undergraduate peer mentoring: an investigation into processes, activities and outcomes. *Psychology Learning and Teaching, 6* (2), 98-103.

Hryciw, D. H., Tangalakis, K., Supple, B., & Best, G. (2013). Evaluation of a peer mentoring program for a mature cohort of first-year undergraduate paramedic students. *Advances in Physiology Education*, *37* (1), 80-84.

Jerusalem, M., & Schwarzer, R. (1992).Self-efficacy as a resource factor in stress appraisal processes. In R. Schwarzer (Ed.), *Self-efficacy: Thought control of action* (pp. 195-213). Washington, DC: Hemisphere.

Landrum, R. E., & Harrold, R. (2003). What employers want from psychology graduates. *Teaching of Psychology, 30*, 131-133.

Little, B. (2008). Graduate development in European employment: issues and contradictions. *Education + Training, 50* (5), 379-390.

Maras, P., Carmichael, K., Patel, S., & Wills, J. (2007). 'The trouble with Year 10'.13 – 16 year old school students' attitudes to higher education. *Social Psychology of Education, 10*, 375-397.

McGovern, T. V., Corey, L. A., Cranney, J., Dixon, Jr., W. E., Holmes, J. D., Kuebli, J. E., & Walker, S. J. (2010). Psychologically literate citizens. In D. Halpern (Ed.), *Undergraduate education in psychology: Blueprint for the discipline's future* (pp. 9–27). Washington, DC: American Psychological Association.

Passy, R., & Morris, M. (2010).*Evaluation of Aimhigher: learner attainment and progression. Final report.* National Foundation for Educational Research. Retrieved January 8th, 2014 from http://www.hefce.ac.uk/data/year/2010/evaluationofaimhigherlearnerattainmentandprogression/

Reddy, P., & Lantz, C. (2010). Myths, maths and madness: Misconceptions around Psychology. In D. Upton & A. Trapp (Eds.), *Teaching Psychology in Higher Education* (pp. 54-81). Oxford: Blackwell Publishing Ltd.

Reddy, P., Lantz, C., & Hulme, J. (2013). *Employability in Psychology: a guide for departments.* The Higher Education Academy.

Rosenberg, M. (1965).*Society and the adolescent self-image*. Princeton, NJ: Princeton University Press.

Sanders, L., Sander, P., & Mercer, J. (2009). Rogue males? Approaches to study and academic performance of male psychology students. *Psychology Teaching Review, 15* (1), 3-17.

Smith, M. (2011). New voices: Failing boys, failing psychology. *The Psychologist, 24* (5), 390-391.

Trapp, A., Banister, P., Ellis, J., Latto, R., Miell, D., & Upton, D. (2011).*The future of undergraduate psychology in the United Kingdom*. The Higher Education Academy Psychology Network.

Upton, D., & Trapp, A. (2010). Psychology: Past, present, future. In D. Upton & A. Trapp (Eds.), *Teaching Psychology in Higher Education* (pp. 264-271). Oxford: Blackwell Publishing Ltd.

Tables

Table 1: Mentees' and control pupils' mean scores (SD) on pre (T1) – post (T2) measures

	School 1				**School 2**			
	Mentees		Controls		Mentees		Controls	
	T1	T2	T1	T2	T1	T2	T1	T2
Attitudes towards higher education								
Views on likelihood of attending university	30.57 (8.30)	28.29 (9.80)	33.50 (5.11)	33.17 (4.41)	30.75 (6.34)	30.00 (6.71)	30.33 (2.94)	30.67 (3.14)
Expected A-level grades	12.50 (2.51)	12.75 (1.98)	12.86 (1.50)	13.29 (1.40)	12.44 (2.24)	12.11 (1.54)	12.83 (1.33)	11.83 (2.64)
General academic motivation	28.38 (3.41)	27.50 (3.90)	30.00 (1.83)	30.43 (2.31)	27.44 (3.97)	28.00 (3.50)	29.33 (2.50)	28.83 (1.94)
Self-Esteem	15.71 (4.11)	17.00 (4.41)	18.67 (2.11)	19.33 (1.41)	21.11 (5.23)	17.44 (4.92)	17.80 (5.81)	19.00 (6.89)
Self-Efficacy	31.63 (4.40)	28.88 (5.41)	30.29 (3.15)	30.29 (4.11)	31.00 (5.81)	29.38 (5.21)	31.83 (3.60)	29.50 (4.20)

Table 2: Summary of mentees' responses to statements about the impact of mentoring sessions

	School 1					School 2				
The mentoring sessions…	**Strongly Agree**	**Agree**	**Undecided**	**Disagree**	**Strongly Disagree**	**Strongly Agree**	**Agree**	**Undecided**	**Disagree**	**Strongly Disagree**
Helped my confidence in psychology	11.1%	88.9%	0.0%	0.0%	0.0%	0.0%	45.5%	27.3%	18.2%	9.1%
Helped my knowledge in psychology	22.2%	77.8%	0.0%	0.0%	0.0%	0.0%	45.5%	36.4%	9.1%	9.1%
Have shown me different ways to study the material	11.1%	88.9%	0.0%	0.0%	0.0%	9.1%	36.4%	36.4%	9.1%	9.1%
Helped my approach to studies in other subjects	0.0%	55.6%	33.3%	11.1%	0.0%	0.0%	9.1%	45.5%	36.4%	9.1%
Have given me ways to tackle my studies in general	11.1%	55.6%	33.3%	0.0%	0.0%	0.0%	27.3%	36.4%	36.4%	0.0%
Proved helpful in managing my time	0.0%	55.6%	33.3%	11.1%	0.0%	0.0%	18.2%	54.5%	27.3%	0.0%
Made me feel more positive about attending classes	0.0%	77.8%	22.2%	0.0%	0.0%	0.0%	45.5%	36.4%	18.2%	0.0%
Increased my friendship network	0.0%	44.4%	33.3%	11.1%	11.1%	0.0%	36.4%	36.4%	18.2%	9.1%
Has been a positive experience	44.4%	55.6%	0.0%	0.0%	0.0%	18.2%	45.5%	18.2%	9.1%	9.1%

Table 3: Mentors' mean scores (SD) on pre (T1) – post (T2) measures

	Mentors	
	T1	**T2**
Self-Esteem	19.63 (4.37)	19.38 (5.85)
Self-Efficacy	31.38 (2.32)	33.25 (2.12)
Psychological Literacies		
Knowledge of subject matter	3.25 (0.46)	3.38 (0.52)
Valuing the intellectual challenge required to use scientific thinking	3.00 (0.00)	3.38 (0.52)
Creative and amiable skeptic approach to problem solving	3.13 (0.64)	3.13 (0.64)
Applying psychological principles	3.25 (0.46)	3.13 (0.35)
Acting ethically	3.88 (0.35)	3.63 (0.52)
Competent in using and evaluating information and technology	3.50 (0.54)	3.50 (0.54)
Communicating effectively	3.38 (0.52)	3.38 (0.52)
Recognising, understanding and fostering respect for diversity	3.63 (0.74)	3.75 (0.46)
Insightful and reflective about behaviour and mental processes	3.13 (0.64)	3.63 (0.52)

Table 4: Mentors' responses to statements about the impact of mentoring sessions

The mentoring sessions…	**Strongly Agree**	**Agree**	**Undecided**	**Disagree**	**Strongly Disagree**
Developed my speaking skills	50.0%	25.0%	25.0%	0.0%	0.0%
Developed my presentation skills	62.5%	37.5%	0.0%	0.0%	0.0%
Developed my confidence	62.5%	37.5%	0.0%	0.0%	0.0%
Developed my understanding of psychology	0.0%	75.0%	12.5%	12.5%	0.0%
Made me feel more motivated to study	12.5%	50.0%	25.0%	12.5%	0.0%
Enabled me to meet new people	62.5%	25.0%	12.5%	0.0%	0.0%
Made me feel more connected to the university	25.0%	75.0%	0.0%	0.0%	0.0%

Figures

Figure 1: Process of action research project

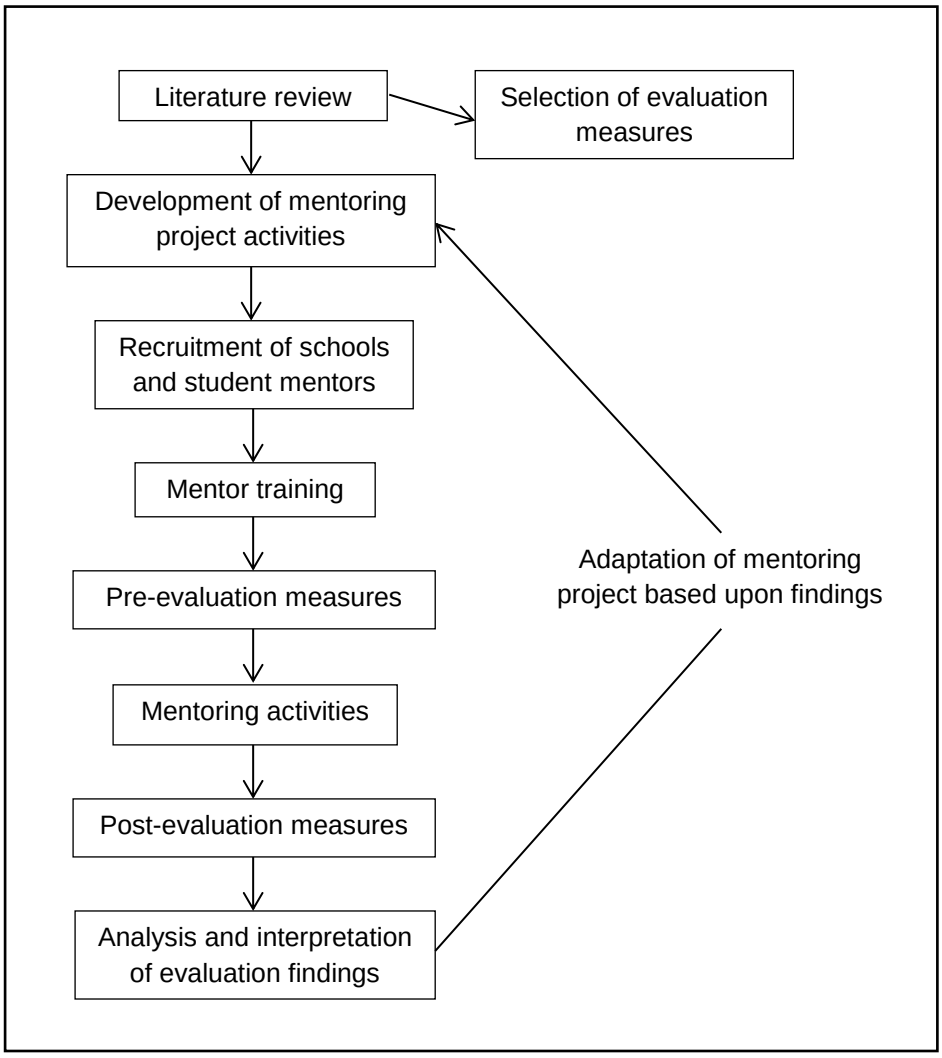

Figure 2: Outline of mentoring activities

Mentoring Activities

Presentation on psychology at degree level – talk by mentors to all pupils

Mentoring session 1 – Introductions and goal-setting

Mentoring session 2 – Studying a psychology degree

Mentoring session 3 – Study support around an A-level curriculum topic

University campus visit

Mentoring session 4 – Open session with topic to be agreed with mentees

*Mentoring session 5** – Reviewing goals and planning presentations

*Mentoring session 6** – Mentees' presentations on the mentoring experience

* School 1 only